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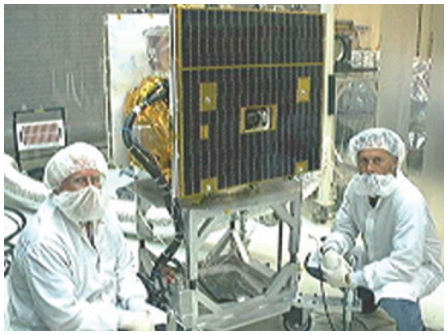
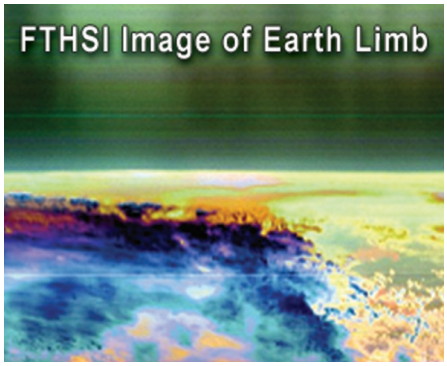
Success Story

MIGHTYSAT II COMPLETES ONE-YEAR ON-ORBIT MISSION





The Space Vehicles Directorate's highly capable MightySat II satellite, equipped with a Fourier Transform Hyperspectral Imager (FTHSI), completed its one-year on-orbit mission to prove 10 advanced technologies in space.

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Accomplishment

The joint Department of Defense Space Test Program and the directorate's MightySat II satellite completed its 12-month mission to boldly demonstrate cutting-edge space technologies following the satellite's Minotaur 2 launch and orbital insertion. While experiencing a mere handful of spacecraft anomalies during its one-year mission, MightySat II continues to operate its experimental payloads.

In less than two weeks time, the primary experiment, FTHSI, collected, downloaded, and processed 163 hyperspectral images, while the Shape Memory Alloy Thermal Tailoring experiment cycled over 1,500 times, and the satellite traveled 152 million miles in its 550-kilometer, sun-synchronous orbit. FTHSI provided the first hyperspectral image from space, the first space-based hyperspectral image of the earth limb, and several moon shots.

MightySat II continued its mission, following deployment of ½-lb-each PicoSats (miniature satellites). In addition to the satellite's nearly flawless on-orbit performance, the directorate awarded the MightySat II Team its Annual Team Award, while AFRL awarded the MightySat II Team the AFRL Commander's Cup Team Award.

Background

Two classes of MightySat II payloads exist—experimental bus components and stand-alone experiments. Experimental bus components are proven hardware and include a solar array concentrator, Naval Research Laboratory miniature space ground link system transponder, multi-functional composite bus structure, solar array flexible interconnect, and solar array substrate.

Stand-alone experiment payloads aboard MightySat II include FTHSI, quad-C40 processor, Shape Memory Alloy Thermal Tailoring experiment, the Defense Advanced Research Projects Agency/The Aerospace Corporation's PicoSats, and Starfire Optical Range optical reflectors.

Space Vehicles
Emerging Technologies

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTT, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (01-VS-03)